AMENDMENTS TO THE CLAIMS

1. (Cancelled)

2. (Currently Amended) A system capable of transmitting voice and Ethernet data signals over a wide-area network (WAN) circuit; said WAN circuit having a line rate; said system comprising:

an Ethernet ~~physical~~ MAC layer interface for connecting a Subscriber Premise device between an Ethernet LAN and said WAN circuit ~~for providing packets representing Ethernet data signals to said WAN circuit~~;

memory for storing an Ethernet frame received by the Ethernet MAC layer interface;

a WAN transceiver;

a telephone line interface for connecting a standard telephone line equipment to said WAN circuit; said telephone line interface containing a CODEC that digitizes analog signals for transmission of voice packets to said WAN circuit;

fragmentation logic configured to:

replace a first data value at a first replacement location in the stored Ethernet frame with a first frame identifier, said first replacement location based on said line rate; and

transfer a first number of bytes from the start of the stored Ethernet frame to the WAN transceiver, said number based on said line rate; and

~~a fragmenting device containing a software algorithm rendered effective by the presence of packets from said telephone line interface for fragmenting Ethernet data signals into labeled packets interspersed with said voice packets as the Ethernet data signals pass therethrough; said labeled packets having a fragmented packet size determined by said line rate; and~~

a packet flow device configured to mix said ~~labeled packets~~ fragmented Ethernet frames and said voice packets into a stream provided to said WAN circuit.

3. (Cancelled)

4. (Currently Amended) The system as defined in claim [[2]] 22 in which ~~the size of the fragmented packet~~ N is chosen to ensure that the packets from said telephone line ~~can have an arrival rate of~~ arrive at 64 Kbps regardless of the network line speed or Ethernet traffic.

5. (Currently Amended) The system as defined in claim [[2]] 22 in which ~~the size of the fragmented packet~~ N is chosen from the following table:

Line Rate	Fragmented Packet Size
2,320 Kbps	554 Bytes
2,064 Kbps	490 Bytes
1,552 Kbps	362 Bytes
1,040 Kbps	234 Bytes
784 Kbps	170 Bytes
528 Kbps	106 Bytes
400 Kbps	74 Bytes
272 Kbps	42 Bytes

6-7. (Cancelled)

8. (Currently Amended) A system for multiplexing Ethernet packets and voice signals over a wide-area network (WAN) circuit connecting a subscriber premise and a provider premise, the WAN circuit having a line rate, the system comprising:

an Ethernet interface configured to communicate data packets to and from an Ethernet LAN;

a telephone line interface coupled to telephone equipment and configured to produce voice packets;

memory for storing an Ethernet frame received by the Ethernet MAC layer interface;

a WAN transceiver;

a fragmentation device configured to receive an Ethernet frame ~~packets~~ from the Ethernet interface and to~~, responsive to the presence of the voice packets at the telephone line interface, to fragment Ethernet packets into labeled data packets, wherein the size of the labeled data packets is based on the WAN line rate~~ calculate a fragmentation size N based on said line rate, and to replace a data value at the Nth byte within the stored Ethernet frame with a first frame identifier, and to transfer the first N+1 bytes of the stored Ethernet frame to a WAN interface;

a multiplexer configured to multiplex the labeled data packets with the voice packets into a stream; and

wherein the [[a]] WAN interface is configured to communicate the multiplexed stream of voice packets and labeled data packets over the WAN circuit.

9-12. (Cancelled)

13. (Currently Amended) A method for multiplexing Ethernet frames and voice signals over a wide-area network (WAN) circuit connecting a subscriber premise and a provider premise, the method comprising:

receiving an Ethernet ~~frames~~ frame into memory;

receiving a voice ~~packets~~ packet;

responsive to the presence of the voice ~~packets~~ packet, ~~fragmenting each of the Ethernet frames into a plurality of data packets having a size calculated to ensure that the transmission time of the data packet over the WAN circuit is no longer than the transmission time of a voice packet~~ labeling the Nth byte from the start of the received Ethernet frame ~~each of the data packets~~ with an identifier marking the end of a fragmented data packet, said identifier indicating

where the fragmented data packet fits within the received Ethernet frame, wherein N is based on a line rate of a WAN transceiver coupled to the WAN circuit; ~~and~~

transferring N bytes from the start of the received Ethernet frame to the WAN transceiver; and

multiplexing the labeled data packets and the voice packets over the WAN circuit.

14-17. (Cancelled)

18. (Previously Presented) The method of claim 13, wherein ~~the size~~ N is based on a sampling rate at which the voice packets are produced.

19. (Previously Presented) The system of claim 13, wherein the multiplexing step further comprises:

multiplexing the labeled data packets with the voice packets over the WAN circuit according to a priority scheme whereby one voice packet alternates with one labeled data packet.

20. (New) The system of claim 1, where the first frame identifier represents a first packet of an Ethernet frame and wherein the fragmentation logic is further configured to:

determine a second replacement location based on said line rate; and

replace a second data value at the second replacement location with a second frame identifier identifying a middle packet of an Ethernet frame; and

transfer, starting at the first replacement location in the stored Ethernet frame, the first number of bytes to the WAN transceiver.

21. (New) The system of claim 1, wherein the fragmentation logic is further configured to:

write the first data value to the first replacement location.

22. (New) The system of claim 1, wherein the fragmentation logic is further configured to:

calculate a fragmented packet size N, based on said line rate;

determine a first replacement location that is N+1 bytes from the start of the stored Ethernet frame; and

transfer N+1 bytes from the start of the stored Ethernet frame to the WAN transceiver.

23. (New) The system of claim 1, where the first frame identifier represents a complete Ethernet frame, a first packet of an Ethernet frame, a middle packet of an Ethernet frame, or a last packet of an Ethernet frame.

24. (New) The system of claim 1, where the transfer is effected by a direct memory access (DMA) transfer.

25. (New) The system of claim 8, where the first frame identifier represents a first packet of an Ethernet frame and wherein the fragmentation device is further configured to:

replace a second data value at a second replacement location with a second frame identifier identifying a middle packet of an Ethernet frame, wherein the second replacement location is based on said line rate; and

transfer, starting at the Nth location in the stored Ethernet frame, the first number of bytes to the WAN interface.

26. (New) The system of claim 8, wherein the fragmentation device is further configured to:

write the data value to the Nth byte within the stored Ethernet frame.

27. (New) The system of claim 8, where the first frame identifier represents a complete Ethernet frame, a first packet of an Ethernet frame, a middle packet of an Ethernet frame, or a last packet of an Ethernet frame.

28. (New) The system of claim 8, where the transfer is effected by a direct memory access (DMA) transfer.

29. (New) The method of claim 13, where the first frame identifier represents a first packet of an Ethernet frame and further comprising:

replacing a second data value at a second replacement location with a second frame identifier identifying a middle packet of an Ethernet frame, wherein the second replacement location is based on said line rate; and

transferring, starting at the Nth location in the stored Ethernet frame, the first number of bytes to the WAN transceiver.

30. (New) The method of claim 13, further comprising:

writing the data value to the Nth byte within the stored Ethernet frame.

31. (New) The system of claim 8, where the first frame identifier represents a complete Ethernet frame, a first packet of an Ethernet frame, a middle packet of an Ethernet frame, or a last packet of an Ethernet frame.

32. (New) The system of claim 8, where the transfer is effected by a direct memory access (DMA) transfer.